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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-------------------------------|---------------------|------------------|
| 10/736,134 | 12/15/2003 | Deepak Shukla | 87260AEK | 3618 |
| 7590 12/29/2005 | | | | |
| Paul A. Leipold Patent Legal Staff Eastman Kodak Company 343 State Street Rochester, NY 14650-2201 | | EXAMINER WU, SHEAN CHIU | | |
| | | ART UNIT 1756 PAPER NUMBER | | |
| DATE MAILED: 12/29/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,134

Applicant(s)

SHUKLA ET AL.

Examiner

Shean C. Wu

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 15, 16, 20, 21 and 25-33 is/are rejected.
- 7) ☒ Claim(s) 13, 14, 17-19 and 22-24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/15/03 & 6/13/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 25 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 25, the word “preferably” is indefinite.

In Claim 28, the claim language “Lewis acid salts or compound according to claim 1” is vague because the “compound” in claim 1 is not defined.

2. Claims 27-30 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the liquid crystal layer, does not reasonably provide enablement for the polymeric liquid crystal layer. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. There is no teaching in the specification how one ordinary skill in the art to use “polymeric” liquid crystal layer comprising a Lewis acid salt or compound to improve tilt angle.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-12, 20-21, 25-26, 31 and 33 are rejected under 35 U.S.C. 102(b)/(e) as being anticipated by Tsuboyama et al. (US 2002/0180925 or US 6,737,127).

The reference discloses a liquid crystal device comprising at least one liquid crystal composition layer sandwiched between said pair of electrodes, which a liquid crystal composition is formed by doping a smectic liquid crystal compound with a Lewis acid compound. In Figure 6, the multilayer layer comprises a liquid crystal layer (69) sandwiched between pair of substrates (61) and (66). The Lewis acid compounds include Br₂, I₂, Cl₂, ICl, ICl₃, AsF₅, BF₃, PF₅, SbF₅, SO₃, FeCl₃, AlCl₃, BCl₃, BBr₃, SbCl₆, AsF₆, BF₄, FeOCl, TiCl₄, ZrCl₄, HfCl₄, WF₆, WCl₆ and UF₆. The reference further teaches that liquid crystal materials have a high carrier transporting ability including discotic liquid crystal compounds and smectic liquid crystal compounds. The liquid crystal compounds 1-5 are disclosed from col. 6 to col. 7, in which the compounds 1 and 3 comprise an alkoxy group. The reference liquid crystal compound is doped with a Lewis acid (0.1 to 30 mol %). Therefore, the reference anticipates the claimed invention.

5. Claims 1, 15-16, 20-21 and 31-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukai et al. (US 3,979,319).

The reference teaches a nematic liquid crystal composition comprising a liquid crystal and a carboxylic acid or its ester as an additive, wherein the longitudinal axes of

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liquid crystal molecules can be spontaneously oriented in a direction perpendicular to the surface of a holding wall of a liquid crystal display plate. The nematic liquid crystals and acids are shown on col. 3 and col. 4, respectively. Also, see the claims and Fig. 3. The reference anticipates the claimed invention.

6. Claims 1-4, 8-12, 20-21, 31 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (US 3,894,793).

The reference discloses a homeotropic alignment of nematic liquid crystalline provided by contacting the nematic liquid crystalline with tributyltin chloride, which tributyltin chloride can act as Lewis acid. The tributyltin chloride can be either uniformly dispersed throughout the nematic liquid crystalline material or coated upon a suitable substrate and then placed in contact with the nematic liquid crystalline material. The nematic liquid crystalline materials are shown on col. 7, lines 36-62. The reference further teaches that the nematic material in the aligned state is more transparent than in the non-aligned state, and contrast between aligned and non-aligned portions of a layer of liquid crystalline material may be enhanced with polarizers. Also, see the claims.

The reference anticipates the claimed invention.

7. Claims 13-14, 17-19 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

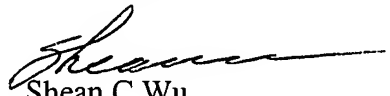
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8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shean C. Wu whose telephone number is 571-272-1393. The examiner can normally be reached on 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Shean C Wu
Primary Examiner
Art Unit 1756

SCW